



STIC Search Report

Biotech-Chem Library

STIC Database Tracking Number: 113779

TO: Michael Borin
Location: Rem 2a55
Monday, February 23, 2004
Art Unit: 1631
Phone: 272-0713
Serial Number: 10 / 074679

2C70

From: Jan Delaval
Location: Biotech-Chem Library
Rem 1A51
Phone: 272-2504

jan.delaval@uspto.gov

Search Notes

interactions of each **rotamer** with at least part of the rest of the backbone structure to generate OPS, this step including **dead-end elimination (DEE)** computation. Also new are (1) a similar method in which, before defining the **rotamers**, each variable residue is classified as a core, surface or boundary residue; in this case the analysis need not (but preferably does) include **DEE** computation; (2) OPS generated this way; (3) nucleic acid (I) encoding OPS; (4) expression vectors and host cells containing (I); (5) **protein** with a sequence at least 5% different from a known **protein** and being at least 20% more stable; (6) computer-readable memory for this process.

USE - The method is used to design **proteins**, e.g. with increased stability or altered biological activity, i.e. the effect of site-directed mutations can be evaluated without having to synthesise the actual **protein**. Typical applications are design of **enzymes** with better heat stability for industrial use in carbohydrate or **protein** processing, and pharmaceutical **proteins** with better thermal and proteolytic stability.

ADVANTAGE - Unlike most **protein** design methods, this process is quantitative, allowing lessons to be learnt from earlier design attempts and improving specificity.

Dwg.0/13

FS CPI EPI

FA AB

MC CPI: B04-E02; B04-E03; B04-E08; B04-F0100E; B04-N04; B11-C08; B12-K04;
D05-H09; D05-H12; D05-H14; D05-H17

EPI: T01-J15

=> d his

(FILE 'HOME' ENTERED AT 12:59:42 ON 23 FEB 2004)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 12:59:52 ON 23 FEB 2004

L1 1 S US20020183937/PN
E MAYO S/AU
L2 138 S E3-E7,E15-E20
E BOLON D/AU
L3 8 S E3,E5
L4 141 S L2,L3
L5 26 S L4 AND (BIOCHEM?(L)METHOD?)/SC,SX
L6 7 S L4 AND (?PROTOZYM? OR ?ENZYM?)
L7 10 S L4 AND ENZYM?/SC,SX

FILE 'REGISTRY' ENTERED AT 13:03:35 ON 23 FEB 2004

L8 1 S PROTOZYME/CN
E PROTOZYME

FILE 'HCAPLUS' ENTERED AT 13:03:55 ON 23 FEB 2004

L9 10 S L8
L10 1 S L4 AND L9
L11 3 S L6,L7,L10 AND L5
L12 33 S L5-L7 NOT L11
E COMPUTER/CT
L13 37947 S E6+NT OR E11
L14 90394 S E19+NT OR E21
L15 6365 S E44+NT
E E6+ALL
E E10+ALL
L16 1192 S E4,E5
E E7+ALL
E E10+ALL

```

L17      36849 S E4,E3
L18      27 S L4 AND L13-L17
L19      48 S L4 AND (COMPUT? OR AUTOMAT?)
L20      59 S L18,L19,L12
L21      44 S L20 AND PROTEIN#/SC,SX,CW
L22      15 S L20 NOT L11,L21
          SEL DN AN 2 3 5 6 7
L23      5 S E1-E9
          SEL DN AN 3 39 44 L21
L24      41 S L21 NOT E10-E18
L25      46 S L11,L23,L24
L26      46 S L25 AND L1-L7,L9-L25
L27      12 S L26 AND ROTAMER?
          E CONFORMATION/CT
          E E3+ALL
L28      108938 S E3-E5
L29      1008881 S E1+NT
L30      32 S L26 AND L28,L29
          E SIMULATION/CT
L31      280217 S E3,E5,E6+NT
L32      265860 S E14+NT
L33      29213 S E30,E31
          E E6+ALL
L34      41952 S E3-E5
L35      36062 S E2+NT
L36      18 S L26 AND L31-L35
L37      19 S L27,L36 AND L30
L38      27 S L26,L30 NOT L37
L39      46 S L37,L38 AND (?ENZYM? OR ?PROTEIN? OR ?PROTOZYM?)
L40      9 S L37,L38 AND (PROTEIN? OR ENZYM?)/SC,SX
L41      46 S L39,L40
          E PROTEIN ENGINEERING/CT
          E E3+ALL
L42      3268 S E3
L43      139 S L42 AND L13-L17
L44      62 S L43 AND L31-L35
          SEL DN AN L44 13 21 24-27 30 38 40 42 47 49 50 57 62
L45      15 S E1-E45
L46      57 S L41,L45
L47      72 S L43 NOT L44-L46
L48      57 S L46 AND L1-L7,L9-L47
L49      57 S L48 AND ?PROTEIN?
L50      33 S L49 AND 9/SC,SX
L51      24 S L49 NOT L50
L52      2 S L51 NOT L4
L53      35 S L50,L52
L54      22 S L49 NOT L53
L55      1 S L53,L54 AND INSERT?
L56      12 S L53,L54 AND ?MUTAT?
L57      3 S L53,L54 AND ACTIVE SITE
L58      14 S L53,L54 AND ROTAMER?
L59      13 S L53,L54 AND VARIA?
L60      33 S L55-L59
L61      24 S L53,L54 NOT L60
          SEL DN AN 5 7 11 13
L62      20 S L61 NOT E46-E57
L63      53 S L60,L62

```

FILE 'HCAPLUS' ENTERED AT 13:44:38 ON 23 FEB 2004

FILE 'BIOSIS' ENTERED AT 13:46:25 ON 23 FEB 2004

```

          E MAYO S/AU
L64      92 S E3-E9,E24

```

```

      E BOLON D/AU
L65      7 S E3,E4
L66     95 S L64,L65
L67     18 S L66 AND 00520/CC
L68     18 S L66 AND CONFERENCE/DT
L69     20 S L66 NOT ARTICLE/DT
L70     18 S L67,L68
      SEL DN AN 3 4 6
L71      3 S L70 AND E1-E6
      E L70 15 ALL

```

FILE 'BIOSIS' ENTERED AT 13:49:48 ON 23 FEB 2004

FILE 'MEDLINE' ENTERED AT 13:49:58 ON 23 FEB 2004

```

      E MAYO S/AU
L72     72 S E3-E10,E19
      E BOLON D/AU
L73      8 S E3,E5,E7
L74     76 S L72,L73
L75     41 S L74 AND L1./CT
L76     44 S L74 AND D12./CT
L77     31 S L75 AND L76
L78     10 S L75 NOT L77
      SEL DN AN 2 3 5 8
L79      4 S L78 AND E1-E12
L80     35 S L77,L79
L81     13 S L76 NOT L77-L80
L82     28 S L74 NOT L80,L81

```

FILE 'HCAPLUS, BIOSIS, MEDLINE' ENTERED AT 13:54:27 ON 23 FEB 2004

L83 64 DUP REM L63 L71 L80 (27 DUPLICATES REMOVED)

FILE 'WPIX' ENTERED AT 13:55:40 ON 23 FEB 2004

```

L84    28647 S G06F019/IC,ICM,ICS
L85    1601 S L84 AND G01N033/IC,ICM,ICS
L86    488 S L84 AND C12N/IC,ICM,ICS
L87    414 S L85 AND L86
L88      1 S L87 AND ?PROTOZYM?/BIX
L89    122 S (DEE OR (DEAD END OR DEADEND) ( ) ELIMINAT?)/BIX
L90     49 S ROTAMER?/BIX
L91     11 S L84 AND L89
L92     14 S L84 AND L90
L93    803 S L84 AND ?PROTEIN?/BIX
L94    306 S L84 AND ?ENZYM?/BIX
L95     18 S L93,L94 AND L89,L90
L96     19 S L91,L92,L95
L97     15 S L96 AND L85
L98      5 S L96 AND C12N/IC,ICM,ICS
L99     19 S L96-L98
      SEL DN AN 6 11 12 13 14
L100    14 S L99 NOT E13-E27
      SEL DN AN L99 12
L101      1 S E28-E30
      E MAYO S/AU
L102    47 S E3-E10
      E BOLON D/AU
L103      1 S E3,E5
L104     10 S L84 AND L102,L103
L105      9 S L104 NOT SPREADSHEET/TI
L106    17 S L88,L100,L101,L105 AND L84-L105

```

FILE 'WPIX' ENTERED AT 14:15:19 ON 23 FEB 2004